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=> s (xerogel) (2A) silica or silicate or silicon
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=> S (xerogel) (6A) (glass transition temperature)
L6           2 (XEROGEL) (6A) (GLASS TRANSITION TEMPERATURE)

=> S (silica or silicate) (2A) (glass transition temperature)
L7         165 (SILICA OR SILICATE) (2A) (GLASS TRANSITION TEMPERATURE)

=> s l5 and l6 and l7
L8           0 L5 AND L6 AND L7

=> s l5 and l7
L9          48 L5 AND L7

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L11         38 L5 (50A) L7

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L12          33 DUPLICATE REMOVE L11 (5 DUPLICATES REMOVED)

=> s l5 (40A) l7
L13         38 L5 (40A) L7

=> d l12 1-38 bib ab

L12  ANSWER 1 OF 33  HCAPLUS  COPYRIGHT 2010 ACS on STN
AN   2009:654140  HCAPLUS
DN   151:84512
TI   Optical glass used for precision molding
IN   Kuang, Bo
PA   CDGM Glass Co., Ltd., Peop. Rep. China
SO   Faming Zhuanli Shenqing Gongkai Shuomingshu, 11pp.
     CODEN: CNXXEV
DT   Patent
LA   Chinese
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    --------------------   --------
PI   CN 101439930         A     20090527    CN 2008-10306373       20081219
PRAI CN 2008-10306373            20081219
AB   The title optical glass comprises SiO2 40-60, TiO2 15-30,
     Li2O+Na2O+K2O+Cs2O 10.5-30, MgO+CaO+SrO+BaO 0-8, Ta2O5+WO3+Nb2O5 0-2,
     Al2O3 0-1, ZrO2 0-1, B2O3 0-5, La2O3 0-2, and clearing agent (or Sb2O3)
     0-0.1mol%.  The title optical glass has a nd of 1.63-1.75, Vd of 27-37,
     and Tg less than 520°C.  The title optical glass, with good
     devitrification resistance, good processing ability and continuous
crystallization
     stability, can be used in imaging system, medical technol., digital
     projection, photoetching, etc..

L12  ANSWER 2 OF 33  SCISEARCH  COPYRIGHT (c) 2010 The Thomson Corporation  on
     STN
AN   2009:499857  SCISEARCH
GA   The Genuine Article (R) Number: 434KN
TI   Synthesis and Properties of Amine-Cured Epoxy/Organophilic Layered
     Silicate Nanocomposites
AU   Gomez, Clara M. (Reprint)
CS   Univ Valencia, Dept Quim Fis, Dr Moliner 50, E-46100 Burjassot, Spain
     (Reprint)
     E-mail: clara.gomez@uv.es
AU   Solar, Lorena; Gomez, Clara M. (Reprint)
CS   Univ Valencia, Dept Quim Fis, E-46100 Burjassot, Spain
     E-mail: clara.gomez@uv.es
AU   Solar, Lorena; Gomez, Clara M. (Reprint)
CS   Univ Valencia, Inst Ciencia Mat, E-46100 Burjassot, Spain
```

E-mail: clara.gomez@uv.es
AU Munoz-Espi, Rafael
CS Max Planck Inst Polymer Res, D-55128 Mainz, Germany
CYA Spain; Germany
SO COMPOSITE INTERFACES, (2009) Vol. 16, No. 2-3, Sp. iss. SI, pp. 157-173. ISSN: 0927-6440.
PB VSP BV, BRILL ACADEMIC PUBLISHERS, PO BOX 9000, 2300 PA LEIDEN, NETHERLANDS.
DT Article; Journal
LA English
REC Reference Count: 40
ED Entered STN: 30 Apr 2009
Last Updated on STN: 30 Apr 2009
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Epoxy-layered silicate composites have been prepared by dispersing an organically modified montmorillonite (Nanofil 919) in an epoxy resin and curing in the presence of an aromatic hardener. Dispersion of the layered silicate within the epoxy matrix was verified using X-ray diffraction and transmission electron microscopy revealing that interaction improves upon organic silicate modification. Flexural properties and toughness increase with the organic silicate loading whereas glass transition temperature decreases, and thermal stability remains practically unmodified. (C) Koninklijke Brill NV, Leiden, 2009

L12 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2008:1062374 HCAPLUS
DN 149:360953
TI Lithium sodium silicate-based matrix glass compositions for gradient index lens manufacture and optical equipment
IN Miyauchi, Taro; Shiba, Tatsufumi
PA Nippon Sheet Glass Co., Ltd., Japan
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 32pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 101250025	A	20080827	CN 2008-10009635	20080219
	JP 2008230956	A	20081002	JP 2008-33246	20080214
	US 20080213495	A1	20080904	US 2008-70157	20080215
PRAI	JP 2007-37511	A	20070219		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB The title matrix glass composition is composed of (by mol%) silicon dioxide 40-65, titanium dioxide 1-10, magnesium oxide 0.1-22, zinc oxide 0.15-15, lithium oxide 2-18, sodium oxide 2-20, boron trioxide 0-20, aluminum oxide 0-10, potassium oxide 0-3, cesium oxide 0-3, yttrium trioxide 0-5, zirconium dioxide 0-2, niobium pentoxide 0-5, indium trioxide 0-5, lanthanum trioxide 0-5, tantalum pentoxide 0-5, at least two of calcium oxide, strontium oxide, and barium oxide 0.1-15, where (magnesium oxide + zinc oxide) ≥ 2 mol%, zinc oxide/(magnesium oxide + zinc oxide) = 0.07-0.93, (lithium oxide + sodium oxide) 6-38 mol%, and (yttrium trioxide + zirconium dioxide + niobium pentoxide + indium trioxide + lanthanum trioxide + tantalum pentoxide) 0-11 mol%. The lead-free Li-series gradient index lens has excellent weather resistance especially in the presence of water.

L12 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2007:1471405 HCAPLUS
DN 148:224882
TI Second-order optical non-linearity initiated in Li2O-Nb2O5-SiO2 and

Li2O-ZnO-Nb2O5-SiO2 glasses by formation of polar and centrosymmetric nanostructures

AU Sigaev, V. N.; Golubev, N. V.; Stefanovich, S. Yu.; Komatsu, T.; Benino, Y.; Pernice, P.; Aronne, A.; Fanelli, E.; Champagnon, B.; Califano, V.; Vouagner, D.; Konstantinova, T. E.; Glazunova, V. A.

CS Mendeleev University of Chemical Technology, Moscow, 125190, Russia

SO Journal of Non-Crystalline Solids (2008), 354(10-11), 873-881
CODEN: JNCSBJ; ISSN: 0022-3093
PB Elsevier B.V.
DT Journal
LA English

AB Amorphous nanoheterogeneities of the size less than 100 Å have been formed in glasses of the Li2O-Nb2O5-SiO2 (LNS) and Li2O-ZnO-Nb2O5-SiO2 (LZNS) systems at the initial stage of phase separation and examined by transmission electron microscopy, small-angle X-ray and neutron scattering. Both LNS and LZNS nanoheterogeneous glasses exhibit second harmonic generation (SHG) even when they are characterized by fully amorphous X-ray diffraction (XRD) patterns. Chemical differentiation and ordering of glass structure during heat treatments at appropriate temps. higher Tg lead to drastic increase of SHG efficiency of LNS glasses contrary to LZNS ones in the frame of amorphous state of samples. Following heat treatments of nanostructured glasses result in crystallization of ferroelec. LiNbO3 and non-polar LiZnNbO4 in the LNS and LZNS glasses, resp. Taking into account similar polarizability of atoms in LNS and LZNS glasses, the origin of the principal difference in the second-order optical non-linearity of amorphous LNS and LZNS samples is proposed to connect predominantly with the internal structure of formed nanoheterogeneities and with their polarity. Most probably, amorphous nanoheterogeneities in glasses may be characterized with crystal-like structure of polar (LiNbO3) phase initiating remarkable SHG efficiency or non-polar (LiZnNbO4) phase, which do not initiate SHG activity. It gives an opportunity to vary SHG efficiency of glasses in a wide rage without remarkable change of their transparency by chemical differentiation process at the initial stage of phase separation when growth of nanoheterogeneities is 'frozen'. At higher temps., LiNbO3 crystals identified by XRD precipitate in LNS glasses initiating even more increase of SHG efficiency but visually observable transparency is impaired.

L12 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN

AN 2008:1549158 HCAPLUS
DN 151:314570

TI Organophilic layered silicate modified vinylester-urethane hybrid resins: structure and properties

AU Corobea, M.-C.; Donescu, D.; Grishchuk, S.; Castella, N.; Apostolov, A. A.; Karger-Kocsis, J.

CS Polymer Department, National R-D Institute for Chemistry and Petrochemistry ICECHIM, Bucharest, RO-060021, Rom.

SO Polymers & Polymer Composites (2008), 16(8), 547-554
CODEN: PPOCEC; ISSN: 0967-3911
PB Smithers Rapra Technology Ltd.
DT Journal
LA English

AB A com. vinylester-urethane (VEUH) hybrid resin was modified with organophilic layered silicates (OLS), incorporated in various amts. (0.1 to 5 weight%). As organophilic intercalants of the layered silicate (synthetic fluorohectorite) tri-Me dodecylamine (TMDA) and octadecylamine

- N,N-bis[allyl(2-hydroxypropyl)ether] (OAE) served. The latter quaternary amine was expected to support the intercalation/exfoliation of the silicate by participating in the crosslinking reactions. Both OLS types became intercalated based on X-ray diffractograms (XRD). Dynamic-mech. thermal anal. (DMTA) displayed a slight increase in the stiffness by adding OLS up to 2.5 weight%. However, at 5wt% OLS content the stiffness of the nanocomposites was below that of the unfilled hybrid resin. The glass transition temperature (Tg) did not change practically with the OLS type and content. Fracture mech. tests were performed on compact tension (CT) specimens. The fracture toughness (Kc) increased slightly, while the fracture energy (Gc) markedly with increasing OLS content. Unexpectedly, TMDA proved to be a more suitable intercalant than OAE. The failure mode of the specimens was studied in a scanning electron microscope (SEM) and discussed. In addition, the water sorption behavior of the OLS modified VEUHs was determined and the diffusion coeffs. (D) deduced.

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)
RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2007:745128 HCAPLUS
DN 147:506610
TI Alkaline earth silicate glass composition for manufacture of spacer with properties suitable for use in flat panel displays
IN Murata, Takashi
PA Nippon Electric Glass Co., Ltd., Japan
SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DT Patent
LA Korean
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	KR 2007009459	A	20070118	KR 2006-66217	20060714
	JP 2008013421	A	20080124	JP 2006-193629	20060714
PRAI	JP 2005-205048	A	20050714		
	JP 2006-158051	A	20060607		

AB A spacer glass suitable for flat panel display, especially, field emission display (FED) is provided to satisfy requirements for the spacer including constant conductivity of film on the spacer, proper thermal expansion coefficient, high dimensional precision and mech. strength by comprising SiO2, oxides of Mg, Ca, Sr, or Ba, oxide of Li, Na or K, and Fe2O3 in desired percents by weight The spacer glass comprises more than 25 weight% of SiO2 and less than 60 weight% of RO wherein R is Mg, Ca, Sr and/or Ba, has volume resistivity (log rho) of more than 10.0 Ω/cm at 350°, alkali extraction amount of less than 1 mg, thermal expansion coefficient of 50-95 + 10-7/°C, liquid temperature of less than 1200° and strain point of more than 550°. The spacer is fabricated by the steps of drawing-molding spacer glass and cutting the drawing molded glass product. SiO2/RO ratio by mass ranges from 0.5-2.0. The glass contains 25-80 weight% of SiO2, 20-60 weight% of RO, 0-8 weight% of R'2O wherein R' is Li, Na and/or K, and 0-20 weight% of Fe2O3.

L12 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2007:663346 HCAPLUS
DN 147:415184
TI Silicate all-solid photonic crystal fibers with a glass high index contrast
AU Buczynski, Ryszard; Pysz, Dariusz; Kujawa, Ireneusz; Fita, Piotr; Pawlowska, Monika; Nowosielski, J.; Radzewicz, Czeslaw; Stepien, Ryszard

CS Information Optics Group, Faculty of Physics, Warsaw Univ., Warsaw, 01-919, Pol.
SO Proceedings of SPIE-The International Society for Optical Engineering (2007), 6588(Photonic Crystal Fibers), 658802/1-658802/8
CODEN: PSISDG; ISSN: 0277-786X
PB SPIE-The International Society for Optical Engineering
DT Journal
LA English
AB An all-solid photonic crystal fiber can be developed using two thermally matched glasses with one glass forming the background, and the other the lattice of inclusions. Optical properties of all-solid holey fibers (SOHO) are sensitive to the photonic cladding configuration, much the same as PCFs with air holes, and strongly depend on dispersion properties of the materials used. When a high index contrast between the glasses is assured photonic crystal fiber can effectively guide light with photonic band gap mechanism. This can be easily achieved when multicomponent soft glass is used for fiber fabrication. We report on new developments of F2/NC-21 silicate all-glass PCFs. F2 is a com. available glass (Schott Inc.) with a high concentration of lead-oxide (PbO=45.5%) and the refractive index nD=1.619. It can be used both as the background material and as a material for micro-rods (inclusions). A borosilicate glass (B2O3=26.0%) NC-21 glass has been synthesized inhouse at IEMT. NC21 has the index nD=1.533 and was used as the material for micro-rods (inclusions) or as a background glass in the structures. The two selected glasses have a high index contrast equal to 0,084 at 1,55μm wavelength. In this report we present new results on optimization of the filling factor d/Λ and reduction of the lattice pitch Λ necessary to obtain efficient guidance at 1.55 μm. The numerical anal. of SOHO F2/NC21 fibers has been carried out using a full-vector mode solver based on the plane-wave expansion method. In our paper we report on photonic crystal fibers with two guiding mechanisms: an effective index with a high index core (low index inclusions made of NC21 glass and F2 used as a background glass) and a photonic band gap with a low index core (high index inclusions made of F2 glass and NC21 used as a background glass).
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 8 OF 33 WPIDS COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2007-072199 [200707] WPIDS
DNC C2007-026977 [200707]
DNN N2007-049332 [200707]
TI Light device, e.g. discharge lamp, has component having light element, and another component containing aluminum silicate glass having preset glass transition temperature and thermal coefficient expansion
DC L01; L03; X26
IN BRIX P; FECHNER J; OTT F; PEUCHERT U; ZACHAU T
PA (ZEIS-C) SCHOTT AG; (BRIX-I) BRIX P; (FECH-I) FECHNER J; (OTTF-I) OTT F; (PEUC-I) PEUCHERT U; (ZACH-I) ZACHAU T
CYC 111
PIA US 20060279217 A1 20061214 (200707)* EN 17[6]
DE 102005026695 A1 20061221 (200707) DE
WO 2006131202 A1 20061214 (200707) DE
CN 101189702 A 20080528 (200853) ZH
JP 2008543022 T 20081127 (200880) JA 26
ADT US 20060279217 A1 US 2006-345167 20060201; DE 102005026695 A1 DE 2005-102005026695 20050609; CN 101189702 A CN 2006-80019278 20060522; WO 2006131202 A1 WO 2006-EP4840 20060522; CN 101189702 A PCT Application WO 2006-EP4840 20060522; JP 2008543022 T PCT Application WO 2006-EP4840 20060522; JP 2008543022 T JP 2008-515082 20060522
FDT CN 101189702 A Based on WO 2006131202 A; JP 2008543022 T Based on WO 2006131202 A

PRAI DE 2005-102005026695 20050609
US 2006-345167 20060201
AB US 20060279217 A1 UPAB: 20070129
NOVELTY - The light device has a component (C1) having a light element, and a component (C2) encompassing the component (C1). The component (C2) contains aluminum silicate glass having glass transition temperature of more than 600degreesC and thermal coefficient expansion of more than 0 at 20-300degreesC.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for manufacture of light device.
USE - For, e.g., metal halide high-pressure discharge lamp.
ADVANTAGE - The light device has optimum white impression property.
DESCRIPTION OF DRAWINGS - The figure shows the cross-sectional view of lamp.
Burner system (2)
Nipple (4)
Outlet wires (6, 8)
Extension (10)
Base plate (50)

L12 ANSWER 9 OF 33 WPIDS COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2006-735194 [200676] WPIDS
DNC C2006-226517 [200676]
DNN N2006-575524 [200676]
TI Resin composition for forming film, comprises resin having preset glass transition temperature and layered silicate, and has preset light transmittance in film of specific thickness formed from composition
DC A89; L03; P81; U11; U14; V05
IN TAKAMOTO T
PA (FUJF-C) FUJI PHOTO FILM CO LTD
CYC 1
PIA JP 2006265383 A 20061005 (200676)* JA 32[0]
ADT JP 2006265383 A JP 2005-85899 20050324
PRAI JP 2005-85899 20050324
AB JP 2006265383 A UPAB: 20061127
NOVELTY - A resin composition comprises a resin having glass transition temperature of 250degreesC or more and layered silicate. The film formed from the resin composition having thickness of 100 microns has light transmittance of 70% or more in wavelength of 420 nm.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) film; and
(2) image display apparatus.
USE - For forming film, used in image display apparatus, in particular a liquid crystal display or organic electroluminescent display (both claimed) or flat panel display, fluorescent display tube, light emitting diode and field emission display, solar cell and touch panel.
ADVANTAGE - The film formed from the resin composition has excellent heat resisting property, dynamic physical property, optical characteristics and minimum line thermal expansion coefficient.

L12 ANSWER 10 OF 33 WPIDS COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2005-515070 [200553] WPIDS
DNC C2005-156233 [200553]
DNN N2005-420205 [200553]
TI Vinyl-chloride type-resin film for agriculture, contains acrylic-type polymer containing specific trialkoxy silicate monomer, and has specific glass transition temperature after aging
DC A14; A97; G02; P13
IN FUJIWARA K; KOBAYASHI T; TAKAZAWA T; TASHIRO K

PA (MITU-C) MITSUBISHI KASEI VINYL KK; (MISD-C) MITSUBISHI PLASTICS IND LTD
CYC 1
PIA JP 2005179563 A 20050707 (200553)* JA 14[0]
JP 4459609 B2 20100428 (201029) JA 14
ADT JP 2005179563 A JP 2003-424612 20031222; JP 4459609 B2 JP 2003-424612 20031222
FDT JP 4459609 B2 Previous Publ JP 2005179563 A
PRAI JP 2003-424612 20031222
AB JP 2005179563 A UPAB: 20100506
NOVELTY - A vinyl-chloride type-resin film consists of a composition (A) formed on one or both surfaces of a vinyl-chloride type-resin film, by aging processing. The composition (A) contains acrylic-type polymer containing specific trialkoxy silicate monomers (0.1-15 weight%), as main component. The vinyl-chloride type-resin film has glass transition temperature of 40-95degreesC after aging.
DETAILED DESCRIPTION - A vinyl-chloride type-resin film consists of a composition (A) formed on one or both surfaces of a vinyl-chloride type-resin film, by aging processing. The composition (A) contains acrylic-type polymer containing trialkoxy silicate monomers (0.1-15 weight%) of formula: CH2=CR1-R2-Si(OR3)3, as main component. The vinyl-chloride type-resin film has glass transition temperature of 40-95degreesC after aging.
R1=H or methyl group;
R2=direct coupling or bivalent organic residue;and
R3=alkyl group.
USE - For agriculture.
ADVANTAGE - The resin film has excellent durability, weather resistance and dust-proof property.

L12 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2006:39655 HCAPLUS
DN 144:274987
TI Layered silicate-induced enhancement of fracture toughness of epoxy molding compounds over a wide temperature range
AU Han, Joong Tark; Cho, Kilwon
CS Department of Chemical Engineering/Polymer Research Institute, Pohang University of Science and Technology, Pohang, 790-784, S. Korea
SO Macromolecular Materials and Engineering (2005), 290(12), 1184-1191
CODEN: MMENFA; ISSN: 1438-7492
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
AB The fracture toughness of EMC was dramatically increased over a wide temperature
range by the addition of a very low volume fraction of layered silicates to EMC filled with micro-silica particles. Layered silicate-EMC nanocomposites containing intercalated and the exfoliated silicates were fabricated by using o-cresol and biphenyl type epoxy resins, resp. It was found that exfoliated silicates were more effective than intercalated silicates at toughening EMC at temps. above Tg of the epoxy resin. Enhanced fracture toughness of EMC over a wide temperature range, from ambient to 230°C has been attributed to the presence of layered silicates, which induces macroscopic crack deflection and severe plastic deformation in front of the crack tip.
OSC.G 4 THERE ARE 4 CAPLUS RECORDS THAT CITE THIS RECORD (4 CITINGS)
RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 12 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN DUPLICATE 1
AN 2005:514766 SCISEARCH

GA The Genuine Article (R) Number: 924BH
TI Correlation between maximum crystal growth rate and glass transition temperature of silicate glasses
AU Zanotto E D (Reprint)
CS UFSCar, LaMaV, Vitreous Mat Lab, BR-13565905 Sao Carlos, SP, Brazil (Reprint)
AU Fokin V M; Nascimento M L F
CS E-mail: pmlfn@iris.ufscar.br; dedz@power.ufscar.br
CYA Brazil
SO JOURNAL OF NON-CRYSTALLINE SOLIDS, (15 APR 2005) Vol. 351, No. 10-11, pp. 789-794.
ISSN: 0022-3093.
PB ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DT Article; Journal
LA English
REC Reference Count: 29
ED Entered STN: 26 May 2005
Last Updated on STN: 26 May 2005
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Recent publications demonstrate that the maximum homogeneous nucleation rates, I-max of silicate glasses strongly diminish with the reduced glass transition temperature, T-gr (= T-g/T-m/L), where T-g is the glass transition temperature and T-m/L is the melting point or liquidus temperature). In addition, the critical cooling rates for metallic glass formation, R,, also drop with rising T-gr. From these empirical observations as well as from theoretical considerations, it is expected that the maximum crystal growth rates, U-max, also depend on T-gr. In this paper we test and confirm this assumption by plotting experimental U-max vs. T-gr for 20 silicate glasses, and then use the most common crystal growth model - screw dislocation growth - to calculate and compare maximum experimental growth rates with theoretical predictions. Despite several assumptions made for the calculations, there is good agreement between theory and experiment, both in the magnitude of U-max(T-gr) and in the temperature of the maximum crystal growth rate, T-max(U). These in findings indicate that the screw, dislocation growth,th model is a good approximation to describe crystal growth in silicate glasses. © 2005 Elsevier B.V. All rights reserved.

L12 ANSWER 13 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN DUPLICATE 2
AN 2005:719692 SCISEARCH
GA The Genuine Article (R) Number: 939IZ
TI The glass transition temperature of silicate and borate glasses
AU Avramov I (Reprint)
CS Bulgarian Acad Sci, Inst Phys Chem, Acad G Bonchev Str, Bl 11, BU-1113 Sofia, Bulgaria (Reprint)
AU Vassilev T; Penkov I
CS Bulgarian Acad Sci, Inst Phys Chem, BU-1113 Sofia, Bulgaria; Bulgarian Acad Sci, Inst Met Sci, Sofia 1574, Bulgaria
E-mail: avramov@ipc.bas.bg
CYA Bulgaria
SO JOURNAL OF NON-CRYSTALLINE SOLIDS, (15 MAR 2005) Vol. 351, No. 6-7, pp. 472-476.
ISSN: 0022-3093.
PB ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DT Article; Journal
LA English
REC Reference Count: 21
ED Entered STN: 22 Jul 2005
Last Updated on STN: 6 Oct 2005

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB The dependence of the glass transition temperature on silicate composition as well as on borate composition is discussed. Some new experimental results on borosilicate glass-enamels are put together with the existing literature data. It is demonstrated that in the glass transition interval the activation energy E(T-g) for viscous flow is related to the glass transition temperature. The activation energy for viscous flow is given by E(T-g) = 260T(g) +/- 10% [J/mol]. In the case of silicates, the glass transition temperature decreases almost linearly with the molar fraction x of network modifier, NM. In the interval 0.01 < x < 0.6 the glass transition temperature is:

T-g(x) = (1080 - 626x) +/- 5% [K] for (Na2O + MgO)(x)(Al2O3 + SiO2)(1-x)

T-g(x) = (967 - 626x) +/- 5% [K] for (PbO)(x)(SiO2)(1-x)

T-g(x) = (895 - 626x) +/- 5% [K] for (Na2O)(x)(SiO2)(1-x)

This is easily explained assuming that viscous flow is controlled by the motion of SiO4 tetrahedra with one oxygen bridge already broken. In the same time the alkaline cations impose some spatial hindrance, therefore, larger is the cation the higher is the hindrance. The composition, x, dependence of the glass transition temperature of borates is more complicated. It has a maximum at about 30% of network modifier. This happens because introduction of NM changes borate structure from one consisting of BO3 triangles sharing edges to BO4 tetrahedra similar to SiO4 tetrahedra in silicates.

L12 ANSWER 14 OF 33 HCAPLUS

AN 2004:376728 HCAPLUS

DN 141:124480

TI An explanation of silicate exfoliation in polyacrylonitrile/silicate nanocomposites prepared by in situ polymerization using an initiator adsorbed on silicate

AU Choi, Yeong Suk; Chung, In Jae

CS Department of Chemical and Biomolecular Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, 305-701, S. Korea

SO Polymer (2004), 45(11), 3827-3834
CODEN: POLMAG; ISSN: 0032-3861

PB Elsevier Science Ltd.

DT Journal

LA English

AB Sodium montmorillonite (Na-MMT) absorbed a radical initiator, potassium persulfate (KPS), by way of hydrogen bonding between hydroxyl groups in the Na-MMT lattice and the sulfonic anions of KPS. FTIR absorbance bands of hydroxyl groups in the Na-MMT lattice and the sulfonic anions of KPS shifted to lower wavenumber regions, compared with the free silicate and the initiator. The amts. of initiator adsorbed on the silicate were determined by using thermogravimetric anal. The initiator adsorbed on silicate (IAS) commenced the polymerization of acrylonitrile (AN), delaminating silicate layers in polyacrylonitrile (PAN)/silicate nanocomposites. Mol. wts. of PANs extracted from the nanocomposites decreased as the amount of initiator in IAS increased. Heterogeneous nucleation, polymerization in the basal spacing of the silicate layers, was analyzed by high performance liquid chromatograph. Storage moduli, E', of the nanocomposites were enhanced with the mol. wts. of PAN matrixes. Glass temps., Tg, of the nanocomposites were dependent on the mol. wts. of the PAN matrixes and the contents of the 2-acrylamido-2-methyl-1-propanesulfonic acid (AMPS) charged.

OSC.G 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)

RE.CNT 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 15 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN
AN 2004:646373 SCISEARCH
GA The Genuine Article (R) Number: 836AT
TI Configurational entropy and crystal nucleation of silicate glasses
AU Deubener J (Reprint)
CS Tech Univ Clausthal, Inst Nichmet Werkstoffe, D-38678 Clausthal Zellerfeld, Germany (Reprint)
E-mail: joachim.deubener@tu-clausthal.de
CYA Germany
SO PHYSICS AND CHEMISTRY OF GLASSES, (APR 2004) Vol. 45, No. 2, pp. 61-63.
ISSN: 0031-9090.
PB SOC GLASS TECHNOLOGY, THORNTON 20 HALLAM GATE ROAD, SHEFFIELD S10 5BT, S YORKSHIRE, ENGLAND.
DT Article; Journal
LA English
REC Reference Count: 29
ED Entered STN: 6 Aug 2004
Last Updated on STN: 6 Aug 2004
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Changes in entropy accompanied with the glass transition of jive alkali silicate melts are investigated. Rheometric data and the Adam-Gibbs theory of relaxalion arc utilised to calculate the configurational entropy S-conf(T-g) at the glass transition for each melt. These results, together with calorimetrically determined S-conf(T-g) data of silicate glasses from literature are used to illustrate a compositional trend of 13 silicate glasses involving glass transition temperature and configurational ;entropy on the basis of reduced scales, i.e. T-rg = T-g/T-m and S-rconf/=S-conf(T-g)/DeltaS(m). It is assumed that the configurational entropy, which represents the number of all sampled local potential energy minima, is reduced when the melt is cooled down in the metastable state. Accordingly, for those melts which exhibit a deep supercool limit, ordering of various topological contributions may promote nucleation events and may help to explain the increased volume nucleation tendency in glasses with T-rg < 0(.)58.

L12 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2003:947701 HCAPLUS
DN 140:7795
TI Sodium silicate glasses for wavelength division multiplexing optical filter
IN Kuriyama, Nobuya
PA Central Glass Company, Limited, Japan
SO Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1367029	A2	20031203	EP 2003-11760	20030523
EP 1367029	A3	20040324		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2003342037	A	20031203	JP 2002-151695	20020527
JP 2003342036	A	20031203	JP 2002-151696	20020527
JP 2004026580	A	20040129	JP 2002-186216	20020626
TW 230700	B	20050411	TW 2003-114069	20030523
CA 2429608	A1	20031127	CA 2003-2429608	20030526
US 20030224180	A1	20031204	US 2003-445058	20030527

US 7091144 B2 20060815
CN 1467168 A 20040114 CN 2003-138424 20030527
CN 1233578 C 20051228
PRAI JP 2002-151695 A 20020527
JP 2002-151696 A 20020527
JP 2002-186216 A 20020626
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB Sodium silicate glass compns. for wavelength division multiplexing optical filters are fabricated. A first glass contains, in weight%, 50-65% of SiO2, 5-25% of Na2O, 4-20% of K2O, 0-20% of CaO, 0-10% of MgO, 0-10% of BaO, 0-10% of Al2O3, and 0-10% of TiO2. A second glass contains, in weight%, 35-55% of SiO2, 10-30% of TiO2, 4-20% of ZrO2, 5-25% of Na2O, 0-10% of Al2O3, 0-20% of CeO2, 0-5% of Li2O, 0-20% of K2O, and 0-3 weight% of MgO, CaO, SrO, BaO and/or ZnO. A third glass contains, in weight%, 35-55% of SiO2, 0-20% of Al2O3, 0-10% of B2O3, 1-35% of TiO2, 1-15% of CeO2, 0-10% of Li2O, 5-25% of Na2O, and 0-20% of K2O. The glasses have Young's modulus >75 GPa and thermal expansion coefficient of 100-130 x 10-7/°C.
OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 17 OF 33 WPIDS COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2004-159681 [200416] WPIDS
DNC C2004-063938 [200416]
DNN N2004-127521 [200416]
TI Aqueous metallic paint for forming multilayer coating film, comprises thermosetting property resin composition, metallic pigment, specific resin particle having preset glass transition temperature, and metal silicate
DC A13; A14; A82; G02; P42
IN MATSUNO Y; OKUBO T; ONODA H; SUGIURA K
PA (KAPA-C) KANSAI PAINT CO LTD
CYC 1
PIA JP 2003226843 A 20030815 (200416)* JA 14[0]
ADT JP 2003226843 A JP 2002-27683 20020205
PRAI JP 2002-27683 20020205
AB JP 2003226843 A UPAB: 20050528
NOVELTY - An aqueous metallic paint comprises a thermosetting property resin composition, a metallic pigment, a non-fusion type cross linked resin particle having glass transition temperature of 30-130degreesC, and a metal silicate.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for multilayer coating film formation which involves coating clear paint to the non-hardened coating surface, and aqueous metallic paint, heating and carrying out cross linking curing of coating films.
USE - For forming multilayer coating film (claimed).
ADVANTAGE - The aqueous metallic paint provides metallic coating film having excellent brightness, smoothness, acid resistance, excellent exterior and glitterness. The metallic paint prevents the generation of etching and contamination of the coating film.

L12 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2003:98239 HCAPLUS
DN 138:272369
TI Layered Silicate Nanocomposites Based on Various High-Functionality Epoxy Resins: The Influence of Cure Temperature on Morphology, Mechanical Properties, and Free Volume
AU Becker, Ole; Cheng, Yi-Bing; Varley, Russell J.; Simon, George P.
CS School of Physics + Materials Engineering, Monash University, Clayton, 3800, Australia
SO Macromolecules (2003), 36(5), 1616-1625

CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English
AB This paper investigates the relationship between cure temperature, morphol., and mech. properties of di-, tri-, and tetrafunctional high-performance, epoxy layered-silicate nanocomposites. Wide-angle X-ray anal. (XRD) was carried out at different stages of cure to monitor organoclay exfoliation kinetics. It was found that some (small) degree of conversion was required to obtain significant intercalation. The nanocomposite morphol. was also probed using transmission electron microscopy, XRD, and positron annihilation lifetime spectroscopy. The bifunctional DGEBA resin gave better exfoliation than the resins of higher functionalities. This is attributed to better catalysis of the intragallery reaction by the organo-ions which reside within the galleries. Higher cure temps. were also found to improve clay delamination and simultaneously increased toughness and modulus in case of the DGEBA- and TGAP-based materials. Free volume properties did not vary significantly between resins or with cure temperature and generally followed the rule of mixts., although there was a suggestion that the presence of clay leads to increased free volume This was consistent with decreased glass transition temps. upon addition of layered silicate, ascribed to disruption, and decreased cross-link d. in interfacial regions of clay and epoxy matrix.
OSC.G 91 THERE ARE 91 CAPLUS RECORDS THAT CITE THIS RECORD (91 CITINGS)
RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2003:601510 HCAPLUS
DN 140:254319
TI Nano-silicate reinforced PETI-298 and resultant AS4 composite properties
AU Koene, Bryan E.; Higginson, Keith A.; Criss, Jim M., Jr.
CS Triton Systems, Inc., Chelmsford, MA, 01824, USA
SO International SAMPE Symposium and Exhibition (2003), 48(Advancing Materials in the Global Economy--Applications, Emerging Markets and Evolving Technologies, Book 1), 1087-1096
CODEN: ISSEEG; ISSN: 0891-0138
PB Society for the Advancement of Material and Process Engineering
DT Journal
LA English
AB Layered silicate nanoparticles were used in the thermoset resins of polymer matrix composites (PMC). Phenylethynyl-terminated imide (PETI) oligomers were synthesized in the presence of functionalized nanosilicates. The viscosity of these nanocomposite oligomers remained low enough to be fabricated by high-throughput resin transfer molding (RTM) techniques. Carbon fiber reinforced composites prepared by RTM of the PETI nanocomposite exhibited improved compressive modulus, increased degradation temperature and glass transition temperature, improved interlamellar shear strength retention at elevated temps. (288°C); and an apparent tenfold increase in oxygen barrier at room temperature
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 20 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN DUPLICATE 3
AN 2003:1034189 SCISEARCH
GA The Genuine Article (R) Number: 743LE
TI Water and the glass transition temperature

of silicate melts
AU Deubener J (Reprint)
CS Tech Univ Clausthal, Inst Nichtmet Werkstoffe, Zehntnerstr 2A, D-38678 Clausthal Zellerfeld, Germany (Reprint)
AU Muller R; Behrens H; Heide G
CS Univ Hannover, Inst Mineral, D-30167 Hannover, Germany; Tech Univ Clausthal, Inst Nichtmet Werkstoffe, D-38678 Clausthal Zellerfeld, Germany; Bundesanstalt Mat Forsch Prufung, D-12220 Berlin, Germany
CYA Germany
SO JOURNAL OF NON-CRYSTALLINE SOLIDS, (15 NOV 2003) Vol. 330, No. 1-3, pp. 268-273.
ISSN: 0022-3093.
PB ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DT Letter; Journal
LA English
REC Reference Count: 27
ED Entered STN: 9 Dec 2003
Last Updated on STN: 9 Dec 2003
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Literature data on the effect of water on the glass transition in silicate melts are gathered for a broad range of total water content c(w) from 3 x 10(-4) to 27 wt%. In terms of a reduced glass transition temperature T-g* = T-g/T-g(GN), where T-g(GN) is T-g of the melt containing c(w) approximate to 0.02 wt% total water, a uniform dependence of T-g* on total water content (c(w)) is evident for silicate melts. T-g decreases steadily with increasing water content, most strongly at the lowest water content where H2O is dominantly dissolved as OH. For water-rich melts, the variation of T-g is less pronounced, but it does not vanish even at the largest water contents reported (approximate to27 wt%). T-g* vs. c(w) is fitted by a three-component model. This approach accounts for different transition temperatures of the dry glass, hydroxyl and molecular water predicting T-g as a weighted linear combination of these temperatures'. The required but mostly unknown water speciation in the glasses was estimated using IR-spectroscopy data for hydrous sodium trisilicate and rhyolite. (C) 2003 Published by Elsevier B.V.

L12 ANSWER 21 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN DUPLICATE 4
AN 2003:477565 SCISEARCH
GA The Genuine Article (R) Number: 684CE
TI Homogeneous nucleation versus glass transition temperature of silicate glasses
AU Zanotto E D (Reprint)
CS Univ Fed Sao Carlos, Dept Mat Engn, LaMaV DEMa, Vitreous Mat Lab, POB 676, BR-13565905 Sao Carlos, SP, Brazil (Reprint)
AU Fokin V M; Schmelzer J W P
CS Univ Fed Sao Carlos, Dept Mat Engn, LaMaV DEMa, Vitreous Mat Lab, BR-13565905 Sao Carlos, SP, Brazil; Univ Rostock, Dept Phys, D-18051 Rostock, Germany
CYA Brazil; Germany
SO JOURNAL OF NON-CRYSTALLINE SOLIDS, (15 JUN 2003) Vol. 321, No. 1-2, pp. 52-65.
ISSN: 0022-3093.
PB ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
DT Article; Journal
LA English
REC Reference Count: 32
ED Entered STN: 20 Jun 2003
Last Updated on STN: 20 Jun 2003
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB This paper provides experimental and theoretical evidence for a

correlation between the maximum internal nucleation rate, I-max = I(T-max) [where T-max is the temperature of maximum nucleation rate] and the reduced glass transition temperature, T-gr, for 51 glass-forming liquids. In addition, it demonstrates an analogous correlation between T-max, the time-lag of nucleation at T-max and the reduced glass transition temperature. An explanation is given for these remarkable trends. (C) 2003 Elsevier Science B.V. All rights reserved.

L12 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2002:884007 HCAPLUS
DN 138:90403
TI NMR Spin-Spin Relaxation Studies of Silicate-Filled Low Molecular Weight Poly(dimethylsiloxane)s
AU Cosgrove, Terence; Roberts, Claire; Garasanin, Tania; Schmidt, Randall G.; Gordon, Glenn V.
CS School of Chemistry, University of Bristol, Bristol, BS8 1TS, UK
SO Langmuir (2002), 18(26), 10080-10085
CODEN: LANGD5; ISSN: 0743-7463
PB American Chemical Society
DT Journal
LA English
AB NMR spin-spin relaxation measurements were used to investigate the mobility of poly(dimethylsiloxane) (PDMS) polymers, below the mol. entanglement point, when mixed with trimethylsilyl-treated polysilicate nanoparticles. The results showed that a high mol. weight polysilicate caused a dramatic reduction in the overall PDMS chain mobility at all concns. The relaxation decays were deconvoluted into multiple exponential decays using nonlinear least squares and the DISCRETE algorithm. The components of these decays were associated qual. with adsorbed and nonadsorbed polymer segments. When compared with differential scanning calorimetry measurements, the reduction in the mobility of the PDMS chains as seen in the NMR expts. corresponded to a shift in the glass transition to higher temps., a decrease in the sp. heat increment at the glass transition, and a loss in the ability of the polymer to crystallize at high concns. of polysilicate.
OSC.G 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS RECORD (10 CITINGS)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 23 OF 33 WPIDS COPYRIGHT 2010 THOMSON REUTERS on STN
AN 2002-153364 [200220] WPIDS
TI Polyimide nano complex material with high crystallinity and its preparation method
DC A26
IN CHOI G Y; CHUNG E Y; JUNG E Y; KIM G S; LEE J H; LEE M H
PA (KRIC-C) KOREA RES INST CHEM TECHNOLOGY
CYC 1
PIA KR 2001077251 A 20010817 (200220)* KO 1[10]
KR 366147 B 20030114 (200339) KO
ADT KR 2001077251 A KR 2000-4917 20000201; KR 366147 B KR 2000-4917 20000201
FDT KR 366147 B Previous Publ KR 2001077251 A
PRAI KR 2000-4917 20000201
AB KR 2001077251 A UPAB: 20050525
NOVELTY - Provided are a polyimide nano complex material with high crystallinity and its preparation method. The material is heat resistant, has low thermal expansion and good mechanical property and is used in industrial machines, electronic parts and in automobiles as heat resistant material.
DETAILED DESCRIPTION - The material is prepared by adding polyimide (PI) of formula 1 or its precursor polyamic acid solution into 1-30 weight% of organo-aluminosilicate of layered structure dispersed in solution such

as dimethylacetamide or N-methyl-2-pyrrolidone, stirring at room temperature for 1-24 hours and heat treating at 80-200 degreesC. The PI or polyamic resins have average Mw. of 20,000-300,000g/mol, 0.3-1.5dL/g viscosity and 200-400 degreesC glass transition temperature. The amino silicate layer has 10-50 angstrom of thickness and 1,000-5,000 angstrom of length. Ammonium salts of aliphatic or aromatic hydrocarbon are introduced between the amino silicate layers in order to increase the affinity with PI polymers.

L12 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2001:391229 HCAPLUS
DN 134:372131
TI On the computer simulation of silicate glass surfaces
AU Bakaev, V. A.; Steele, W. A.; Pantano, C. G.
CS Department of Chemistry, Penn State University, University Park, PA, 16802, USA
SO Journal of Chemical Physics (2001), 114(21), 9599-9607
CODEN: JCPSA6; ISSN: 0021-9606
PB American Institute of Physics
DT Journal
LA English
AB The surface layer of xNa2O(1-x)SiO2 (x = 0.245) was simulated by the mol. dynamics. The glass transition temps. Tg (for the mol. dynamics time scale) in the bulk and for the surface layer were determined by the method of inherent structures. In the bulk Tg is larger than at the surface. The isotherm of adsorption of CO2 was also simulated on that model surface by grand canonical Monte Carlo. The isotherm for the unannealed surface lies higher than that on the annealed one but the difference between them is considerably smaller than that for the corresponding surfaces of silica. The correlation between the stability (chemical durability) of the surface and phys. adsorption is discussed. Mols. of CO2 can penetrate >2 nm under the surface of the silicate.
OSC.G 9 THERE ARE 9 CAPLUS RECORDS THAT CITE THIS RECORD (9 CITINGS)
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 25 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 2000:582075 HCAPLUS
DN 134:132213
TI Effect of layered silicates on thermal characteristics of polycarbonate nanocomposites
AU Severe, Geralda; Hsieh, Alex J.; Koene, Bryan E.
CS U. S. Army Research Laboratory, AMSRL-WM-MA, Aberdeen Proving Ground, MD, 21005-5069, USA
SO Annual Technical Conference - Society of Plastics Engineers (2000), 58th(Vol. 2), 1523-1526
CODEN: ACPED4; ISSN: 0272-5223
PB Society of Plastics Engineers
DT Journal
LA English
AB DSC and TGA were used to investigate the thermal properties of polycarbonate (PC)/layered silicate nanocomposites. The type of clays used in this study include phosphonium-exchanged montmorillonites as well as synthetic clays which contain C18-alkyl side chains with or without addnl. tethered amino- or epoxy-groups. The effect of clay content on Tg and thermal stability was determined Synthetic clays have little effect on Tg; however, a very slight decrease in Tg was noted in those nanocomposites filled with phosphonium-exchanged montmorillonite. In addition to Tg, an endothern lso was evident at .apprx.50°. The synthetic clays caused a significant reduction in the thermal stability of the composites.

Composites filled with 7.5 and 10% of C18-synthetic clay also exhibited two-step thermal degradation The second step occurred at a temperature slightly higher than the onset degradation temperature observed in pure PC. Phosphonium-exchanged montmorillonite provides better thermal stability; a slight increase in the onset temperature of thermal degradation over that of pure PC was evidenced.

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 1999:514170 HCAPLUS
DN 131:250543
TI Bulk and surface crystallization of silicate glasses
AU Filipovich, V. N.; Kalinina, A. M.; Fokin, V. M.; Yuritsyn, N. S.; Sycheva, G. A.
CS Grebenschikov Institute of Silicate Chemistry, Russian Academy of Sciences, St. Petersburg, 199155, Russia
SO Inorganic Materials (Translation of Neorganicheskie Materialy) (1999), 35(8), 842-846
CODEN: INOMAF; ISSN: 0020-1685
PB MAIK Nauka/Interperiodica Publishing
DT Journal
LA English
AB Kinetic aspects of nucleation in the bulk and on the surface of silicate glasses are analyzed using earlier exptl. data. The number of nucleating crystals and the rate of steady-state nucleation are evaluated as functions of time and temperature, resp. Glass crystallization can be adequately described in the framework of classical nucleation theory if account is taken of the temperature and nucleus-size dependences of the Gibbs energy of the interface between the glass-forming melt and a critical nucleus. The temperature at which the steady-state nucleation rate reaches a maximum is higher than the glass-transition temperature Tg in the case of surface nucleation and close to Tg in the case of bulk nucleation.
RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2010 ACS on STN
AN 1997:167641 HCAPLUS
DN 126:283841
OREF 126:54859a,54862a
TI Dynamics of silicate melts with radionucleates near the melt-glass transition region
AU Nowok, Jan W.; Steadman, Edward N.
CS Energy & Environmental Research Center, University of North Dakota, Grand Forks, ND, 58202-9018, USA
SO Ceramic Transactions (1996), 72(Environmental Issues and Waste Management Technologies in the Ceramic and Nuclear Industries II), 437-448
CODEN: CETREW; ISSN: 1042-1122
PB American Ceramic Society
DT Journal
LA English
AB The effect of crystalline phases, gradients of temperature, and chemical composition on the fracture of glasses with radionucleates below the temperature of glass transformation, Tg, are discussed. The ductile-brittle transition was

measured in multicomponent silicate glass and correlated to the Tg. The Tg was determined using both DTA and calcn. from the temperature of silicate crystallization
The equilibrium of radionucleate segregation in crystalline phases and the remaining melt is also analyzed.

L12 ANSWER 28 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN
AN 1996:735461 SCISEARCH
GA The Genuine Article (R) Number: BG37Y
TI Viscosity measurements of the Zr46.75Ti8.25Cu7.5Ni10Be27.5 bulk metallic glass forming alloy using parallel plate rheometry and beam-bending
AU Bakke E (Reprint)
CS CALTECH, W M KECK LAB ENGN MAT, PASADENA, CA 91125 (Reprint)
AU Busch R; Johnson W L
CYA USA
SO METASTABLE, MECHANICALLY ALLOYED AND NANOCRYSTALLINE MATERIALS, PTS 1 AND 2, (1996) Vol. 225, pp. 95-100.
ISSN: 0255-5476.
PB TRANSTEC PUBLICATIONS LTD, BRANDRAIN 6, CH-8707 ZURICH-UETIKON, SWITZERLAND.
DT Article; Journal
LA English
REC Reference Count: 13
ED Entered STN: 1996
Last Updated on STN: 1996
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Parallel plate rheometry and three-point beam-bending were used to measure the viscosity as a function of temperature of a bulk metallic glass, Zr46.75Ti8.25Cu7.5Ni10Be27.5 The high thermal stability above the glass transition of this bulk metallic glass former with respect to crystallization allows measuring viscosities 120 K into the supercooled liquid region. Viscosity in the range from 10(10) to 10(6) poise has been measured using parallel plate rheometry, a region of viscosities that has not been previously accessible for supercooled metallic melts. The measurements were carried out with different heating rates between 0.0167 K/s and 1.167 K/s as well as isothermally. Using three-point beam bending, viscosity in the range from 10(13) to 10(8) poise has also been measured. These two methods, which involve completely different geometries for the measurement of flow, yielded consistent values for viscosity where their applicable regions overlap. The viscosity of the supercooled liquid of this bulk glass former, above the glass transition temperature, exhibits a small Vogel-Fulcher temperature relative to the glass transition temperature similar to silicate glasses.

L12 ANSWER 29 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN
AN 1995:798472 SCISEARCH
GA The Genuine Article (R) Number: TF765
TI THE VISCOSITY OF THE ZR46.75TI8.25CU7.5NI10BE27.5 BULK METALLIC-GLASS FORMING ALLOY IN THE SUPERCOOLED LIQUID
AU BAKKE E (Reprint)
CS CALTECH, WM KECK ENGN LAB, PASADENA, CA 91125 (Reprint)
AU BUSCH R; JOHNSON W L
CYA USA
SO APPLIED PHYSICS LETTERS, (27 NOV 1995) Vol. 67, No. 22, pp. 3260-3262.
ISSN: 0003-6951.
PB AMER INST PHYSICS, CIRCULATION FULFILLMENT DIV, 500 SUNNYSIDE BLVD, WOODBURY, NY 11797-2999.

DT Article; Journal
FS PHYS
LA English
REC Reference Count: 15
ED Entered STN: 1995
Last Updated on STN: 1995
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB The viscosity of the Zr46.75Ti8.25Cu7.5Ni10Be27.5 bulk metallic glass forming alloy in the supercooled liquid was measured using parallel plate rheometry. The measurements were carried out with different heating rates between 0.0167 and 1.167 K/s as well as isothermally. Because of the high thermal stability above the glass transition of this bulk metallic glass former with respect to crystallization, it was possible to measure viscosities in the range from 10(10) to 10(6) poise. This region of viscosities has not been previously measured for supercooled metallic melts. Our measurements suggest that the viscosity of the supercooled liquid of this bulk glass former exhibits a small Vogel-Fulcher temperature relative to the glass transition temperature, similar to silicate glasses. (C) 1995 American Institute of Physics.

L12 ANSWER 30 OF 33 SCISEARCH COPYRIGHT (c) 2010 The Thomson Corporation on STN DUPLICATE 5
AN 1995:543729 SCISEARCH
GA The Genuine Article (R) Number: RP370
TI VISCOSITY OF LEAD SILICATE-GLASSES BELOW GLASS-TRANSITION TEMPERATURE BY THE FIBER BENDING METHOD
AU KOIDE M (Reprint)
CS NAGAOKA UNIV TECHNOL, DEPT CHEM, 1603-1 KAMITOMIOKACHO, NAGAOKA, NIIGATA 94021, JAPAN (Reprint)
AU SATO R; KOMATSU T; MATUSITA K
CYA JAPAN
SO PHYSICS AND CHEMISTRY OF GLASSES, (AUG 1995) Vol. 36, No. 4, pp. 172-175. ISSN: 0031-9090.
PB SOC GLASS TECHNOLOGY, THORNTON 20 HALLAM GATE ROAD, SHEFFIELD, S YORKSHIRE, ENGLAND S10 5BT.
DT Article; Journal
FS PHYS; ENGI
LA English
REC Reference Count: 14
ED Entered STN: 1995
Last Updated on STN: 1995
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Viscosities of lead silicate glass fibres with a diameter of about 100 mu m were analysed below the glass transition temperature using the fibre bending method. By measuring the curvature of the bent fibre, the residual strain and the stress were evaluated and the viscosity calculated It was found that below glass transition temperature the viscosities of these glass fibres increase rapidly with time for an initial period and then gradually increases approaching the equilibrium value Moreover, it was found that above and below the glass transition temperature the viscosities obey Fulcher and Arrhenius equations, respectively. The activation energies above the glass transition temperature for the same glasses are larger than those below the glass transition temperature. It was also found that the activation energy for viscous flow both above and below glass transition temperature dea eases with increasing PbO content.

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AN 1994:796755 SCISEARCH
GA The Genuine Article (R) Number: PX680

TI KINETICS OF QUENCHING OF HYDROUS FELDSPATHIC MELTS - QUANTIFICATION USING SYNTHETIC FLUID INCLUSIONS
AU ROMANO C (Reprint)
CS UNIV BAYREUTH, BAYER GEOINST, D-95440 BAYREUTH, GERMANY (Reprint)
AU DINGWELL D B; STERNER S M
CYA GERMANY
SO AMERICAN MINERALOGIST, (NOV-DEC 1994) Vol. 79, No. 11-12, pp. 1125-1134. ISSN: 0003-004X.
PB MINERALOGICAL SOC AMER, 1130 17TH ST NW SUITE 330, WASHINGTON, DC 20036.
DT Article; Journal
FS PHYS
LA English
REC Reference Count: 50
ED Entered STN: 1994
Last Updated on STN: 1994
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB A microthermometric analysis of fluid inclusions preserved during the isobaric quenching of H-2O-saturated, vesicular silicate melts provides a method for the determination of the glass transition temperature of hydrous silicate melts at high pressure. The method is based on the principle that the contraction of inclusion cavities during quenching is rate-limited by the volume relaxation of the melt. Viscous relaxation of the melt ceases during cooling at the glass transition temperature. Bulk densities of the fluid inclusions whose volumes are frozen at the glass transition preserve a record of the trapping event, i.e., the glass transition temperature.

Liquid-vapor homogenization temperatures [T(H(L-V)] of the trapped inclusions are measured using a microscope heating-stage assembly. Bulk densities of H2O present in the inclusions at T(H(L-V)) and P(saturation) are determined from literature values as are the P-T trajectories of the corresponding isochores. The intersection of an isochore with the experimental pressure during the quench yields the glass transition temperature for that particular glass composition and quench rate.

The method has been applied to seven compositions on the join albite-orthoclase. H2O-saturated melts along this join have been rapidly and isobarically quenched at 2000 bars. The total solubilities of H2O range from 5.12 to 6.03 +/- 0.15 wt%. The glass transition temperatures of the H2O-saturated melts range from 525 to 412-degrees-C. The compositional dependence of the glass transition is strongly nonlinear. Melts of intermediate composition exhibit a significantly lower glass transition than either end-member. The deviation from additivity reaches a maximum of 70-degrees-C at Ab50Or50 (molar basis).

The information on T(g) can be combined with data for the properties of the quenched glasses to obtain liquid properties at hydrothermal conditions, for example, the viscosity and the thermal expansivity of the wet melts. The quantification of trapping temperatures for fluid inclusions in silicate melts also has potential applications in the study of the kinetics of melt degassing.

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AN 1992:76990 SCISEARCH
GA The Genuine Article (R) Number: HA821
TI ENTROPY DEPENDENCE OF VISCOSITY AND THE GLASS-TRANSITION TEMPERATURE OF MELTS IN THE SYSTEM DIOPSIDE-ANORTHITE
AU TANIGUCHI H (Reprint)
CS SCI EDUC INST OSAKA PREFECTURE, KARITA 4-13-23, SUMIYOSHI KU, OSAKA 558, JAPAN (Reprint)
AU TANIGUCHI H (Reprint)
CS OKAYAMA UNIV, INST STUDY EARTHS INTERIOR, OKAYAMA 700, JAPAN
CYA JAPAN

SO CONTRIBUTIONS TO MINERALOGY AND PETROLOGY, (JAN 1992) Vol. 109, No. 3, pp. 295-303.
ISSN: 0010-7999.
PB SPRINGER VERLAG, 175 FIFTH AVE, NEW YORK, NY 10010.
DT Article; Journal
FS PHYS
LA English
REC Reference Count: 35
ED Entered STN: 1994
Last Updated on STN: 1994
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB Viscosities of diopside-anorthite melts were measured over the wide range of temperature (near the glass-transition temperature-1580-degrees-C/1 bar) and pressure (5-20 kb/above the liquidus temperature). The measurements were carried out by the fibre-elongation method for low temperature and the counter-balanced sphere method for high temperature at 1 bar, and the sinking and floating spheres method for high temperature at high pressure. Some of the values obtained deviated slightly from those in the literature. The data on viscosity and the glass-transition temperature have been interpreted on the basis of the configurational entropy theory, by which temperature and compositional effects on viscosity were explained well. The configurational entropies at the glass-transition temperature of magmatic silicate melts are almost constant if we use an average molecular weight (amw) or "bead" as a unit; 8.0 + 1.2 J/K.amw, 1.1 +/- 0.2 cal/K.bead. The latter value coincides well with the value from the literature for organic polymers. The negative deviation from linearity of the glass-transition temperature of intermediate melts may be interpreted as the effect of the mixing entropy. The calculated glass-transition temperature-composition curve using the mixing entropy agreed well with the experimental values.

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DN 117:93971
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TI Viscosity and glass-transition temperature of some silicate melts under low and high pressures
AU Taniguchi, H.; Takahashi, E.
CS Sci. Educ. Inst. Osaka Prefect., Osaka, 558, Japan
SO Materials Science Forum (1991), 73-75(Molten Salt Chem. Technol.), 245-50
CODEN: MSFOEP; ISSN: 0255-5476
DT Journal
LA English
AB The viscosities along a diopside ($CaMgSi_2O_6$) - anorthite ($CaAl_2Si_2O_8$) join were determined at low and high pressures up to 20 kbar. The glass-transition temperature (Tg) at high pressure was also measured. The entropy dependence of the viscosity and the glass-transition temperature at 1 bar is briefly discussed.